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For Petitioners: PIT RIVER TRIBE
MOUNT SHASTA BIOREGIONAL ECOLOGY CENTER
NATIVE COALITION FOR MEDICINE LAKE HIGHLANDS DEFENSE

Before the State Water Resources Control Board

In the matter of the Adoption of Order No. R5-2006-0115, Waste Discharge Requirements for Calpine Siskiyou Geothermal Partners, L.P., and CPN Telephone Flat, Inc. by the Central Valley Regional Water Quality Control Board.	**PETITION REQUESTING STATE WATER BOARD REVIEW OF REGIONAL WATER BOARD ORDER NO. R5-2006-0115**

Pursuant to Section 13320 of the California Water Code and Section 2050 of Title 23 of the California Code of Regulations ("CCR"), the Pit River Tribe, Mount Shasta Bioregional Ecology Center, and the Native Coalition for Medicine Lake Highlands Defense ("Petitioners") hereby petition the State Water Resources Control Board ("State Board") to review the October 27, 2006 adoption by the Central Valley Regional Water Quality Control Board ("Regional Board") of Order No. R5-2006-0115, issuing revised Waste Discharge Requirements ("revised WDRs") for Calpine Siskiyou Geothermal Partners, L.P., and CPN Telephone Flat, Incorporated ("Discharger").[1]

Adoption of the revised WDRs arbitrarily and capriciously allows acidification of one geothermal well (31-17) in the Glass Mountain Geothermal Unit Lease Area—while simultaneously requiring additional California Environmental Quality Act ("CEQA") and National Environmental Policy Act ("NEPA") review before acidification of any other well covered by the WDRs. The Regional Board's self-contradictory position on environmental review conflicts with the conclusions of the North Coast Regional Water Quality Control Board, which decided, after examining environmental review documents for portions of the project in

[1] A request for preparation of the record and a list of persons interested in the subject matter is attached as required.

Region 1, that further CEQA review was required before acidification of *any* wells under its jurisdiction.

Furthermore, the Regional Board adopted the revised WDRs under false legal premises. First, the Regional Board was informed that it did not have the jurisdiction to regulate acidification or other "formation stimulation" techniques due to preemption by the federal Safe Drinking Water Act. Second, the Regional Board was informed that it had no authority as a responsible agency to require a subsequent or supplemental EIR before allowing the acidification of wells under its jurisdiction. Third, the Regional Board was informed that the Discharger could proceed with acidification under the old WDRs. Each of these premises are legally and/or factually incorrect. In direct contrast, the North Coast Water Board clearly decided that the Discharger could not acidify wells under their jurisdiction, that they had the legal jurisdiction to regulate, and that they had the authority under CEQA to require further environmental review prior to any acidification.

Finally, on key mitigation and monitoring measures the Regional Board arbitrarily ignored the advice of its own staff expert, Dr. Philip Woodward (CEG, CHG, and Senior Engineering Geologist for the Regional Board). After reviewing proprietary well log and hydrogeological data submitted by Discharger, in addition to the available third-party scientific evidence, Dr. Woodward recommended that the Board require three shallow *and* three deep monitoring wells in order to adequately mitigate the potential for ground and surface water contamination from acidification operations at Well 31-17. Other Regional Board Staff saw fit to recommend only *one* deep and three shallow monitoring wells for mitigation, actively misrepresenting Dr. Woodward's recommendations during the hearing. Based on the Staff recommendation, the Regional Board decided to require only one deep and three shallow monitoring wells in the revised WDRs.

Given conflicting conclusions on related matters of law and fact by two Regional Boards, Petitioners urge the State Board to review the adoption of Order No. R5-2006-0115 in order to clarify these issues. More specifically, they request that the State Board either a) reverse and remand to the Regional Board with instructions to deny the application for WDR revision until a subsequent or supplemental EIR is prepared for the proposed acidification; or b) revise Order No. R5-2006-0115 to prevent any acidification of wells until a subsequent or supplemental EIR is completed for that activity *and* to require three deep and three shallow monitoring wells near Well 31-17, as recommended by the Regional Board's own Senior Engineering Geologist.

Finally, petitioners call the State Board's attention to the pristine nature of the remote Medicine Lake Highlands area and the exceptional purity and quantity of its waters, which feed the Fall River Springs, the largest fresh water springs system in the state. As is well known, this area is held sacred by the Pit River Tribe and other Native American groups. As one Pit River Tribe member says, "The whole area is tied together, that energy under the ground is tied to every one of these mountains around there, tied to Medicine Lake, the springs, the meadows, the plants, the animals."

1. NAMES, ADDRESSES, TELEPHONE NUMBERS AND EMAIL ADDRESSES (IF AVAILABLE) OF PETITIONERS.

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2. THE ACTION OR INACTION OF THE REGIONAL WATER BOARD BEING PETITIONED, INCLUDING A COPY OF THE ACTION BEING CHALLENGED OR ANY REFUSAL TO ACT, IF AVAILABLE.

The Pit River Tribe and the Mount Shasta Bioregional Ecology Center request that the State Board review Central Valley Regional Board Order No. R5-2006-0115, which issued a revised set of Waste Discharge Requirements for Calpine Siskiyou Geothermal Partners, L.P. and CPN Telephone Flat, Incorporated (see attached). Specifically, Petitioners seek denial of Discharger's application for revision of the applicable WDRs until a subsequent or supplemental EIR is prepared for the proposed well acidification. In the alternative, Petitioners seek a revision of Order No. R5-2006-0115 to prevent acidification until a subsequent or supplemental EIR is completed and to require three deep and three shallow monitoring wells near Well 31-17.

3. THE DATE THE REGIONAL WATER BOARD ACTED, REFUSED TO ACT, OR WAS REQUESTED TO ACT.

October 27, 2006.

4. A STATEMENT OF THE REASONS THE ACTION OR INACTION WAS INAPPROPRIATE OR IMPROPER.

Adoption of Central Valley Water Board Order No. R5-2006-0115 was inappropriate and improper because several provisions of the order are themselves arbitrary and capricious. First, the Regional Board ignored its own Senior Engineering Geologist's recommendation to require *three* deep and three shallow monitoring wells around Well 31-17, the only well for which the

revised WDRs authorized acidification. The Regional Board offered no alternative justification for instead requiring only *one* deep and three shallow monitoring wells.

Second, the revised WDRs are internally inconsistent, allowing acidification of Well 31-17 but requiring further CEQA and NEPA review prior to acidification of any other wells in the area. The same documentary record of environmental review applies to all of the wells. If further NEPA and CEQA review is required prior to the acidification of *some* wells, then further NEPA and CEQA review is required prior to the acidification of *all* wells in the area.

Third, the Regional Board relied upon inaccurate legal premises in adopting the revised WDRs—notably, that the Discharger could acidify wells under the old permit, that the Regional Board did not have the jurisdiction to regulate acidification or other "formation stimulation," and that the Regional Board had no authority as a responsible agency under CEQA to require a subsequent or supplemental EIR regarding the proposed acidification. These legal premises are not only inaccurate and opposed to the related legal interpretations of the North Coast Water Board. They are also contrary to prior interpretations of the law expressed both by the Regional Board and by the Discharger itself.

In this section we address the first issue, that of the monitoring wells. In section 7 below we address the second and third issues. We begin, however, with a brief review of the history of the project.

Regulatory history of the Telephone Flat Project.

The "Telephone Flat Geothermal Exploration and Development Projects" at issue have a lengthy regulatory history, dating back to the 1980's. Of most relevance here, in the mid-1990's, Calpine's predecessor-in-interest, California Energy General Corp. ("CalEnergy"), purchased certain federal leases from Unocal Corporation and filed a Report of Waste Discharge for its proposed exploration activities. Unfortunately, despite our Clients' Public Record Act requests for this Report of Waste Discharge and their subsequent in-person file review at the Board's Sacramento offices, a copy of that original application still has not been provided to us. However, it is clear from WDR Order 95-199 itself, and from Staff's subsequent interpretation of it, that the activities covered by the 1995 permit are quite limited.

In particular, in January 1994 Calpine first proposed to drill five deep test wells and to complete testing on those wells within 60 days, starting in the summer of 1994 and concluding by October 1995.[2] Three of these proposed wells were subsequently incorporated into CalEnergy's proposed "Plan of Operation for Geothermal Exploration Activities," which was noticed to the general public in September 1994. In that notice, the federal government described the CalEnergy Plan of Operation as including five specific temperate gradient holes and five exploration holes on various leaseholds in the Medicine Lake Highlands, to be completed for the express "purpose of both identifying and verifying the presence of a commercially viable geothermal resources."[3] This limited exploration project involved very

[2] Calpine Siskiyou Geothermal Partners, Project Description (Jan. 1994) (attached).
[3] Notice to Interested Party (Sept. 23, 1994) (attached).

specific activities and, as is clear from the original notice, did not propose the kind of acidification that is now being considered.

The federal Bureau of Land Management ("BLM") and the Siskiyou County Air Pollution Control District ("SCAPCD") then prepared a short "Environmental Assessment/Initial Study" for CalEnergy's proposed Plan of Operation that described the project in more detail, discussed the particular well procedures and operations to be employed, and explained the potential environmental impacts. Notably, this key environmental review document was focused on the particular well sites and operations being contemplated and did not cover other wells or other types of hazardous operations, such as acidification.[4] Indeed, the document explains that if a well does not "demonstrate satisfactory commercial potential," it will be worked over "by converting the well to an injection well if appropriate, completing the well as an observation well, or plugging and abandoning the well."[5] As with the other public documents for the project, the EA/IS does not mention, let alone evaluate, the possibility of fracturing the geothermal reservoir by injecting thousands of gallons of toxic acid into the wells, or the potential impacts of doing so. Indeed, there was no reason to believe in 1995 that such extreme measures would be necessary to stimulate the resource because the wells had not yet been drilled and found to be wanting. Based on the description and analysis in the EA/IS, BLM and SCAPCD approved the project as proposed, without modification to authorize or accommodate acidification.[6]

Shortly thereafter, the Regional Board approved WDR Order 95-199 to cover the same exploratory project. The WDR Order expressly relied on the analysis and conclusion in the 1995 EA/IS that the proposed project "will cause no significant impacts to water quality."[7] There is no discussion in the WDR Order of acidification and no express authorization to use such hazardous chemicals in the exploratory wells being contemplated, let alone in subsequently developed or planned exploration and development wells. The very limited nature of this permit was made clear in the accompanying Information Sheet, which explained that "[p]otential adverse impacts to water quality from *exploratory* geothermal activities have been evaluated and documented in the Glass Mountain Unit Exploration Project . . . *Exploratory* geothermal activities are expected to have negligible adverse impacts on water quality when conducted as proposed." In an October 15, 1999 letter to the Mount Shasta Bioregional Ecology Center, Mr. Pedri confirmed this understanding, assuring our Clients that "the current WDRs are adequate to protect water quality for the *limited exploration work proposed for the area*."[8] Thus, an expansive array of new development wells, potentially enhanced by thousands of gallons of toxic acids, was never contemplated by WDR Order 95-199 or by the underlying environmental review documentation that supported it.

After acquiring the geothermal leases for the Telephone Flat area and receiving federal approval for its development project, Calpine submitted a new Report of Waste Discharge seeking a revision of WDR Order 95-199. Calpine's proposed revisions would effect three

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[4] 1995 Glass Mountain Unit Geothermal Exploration Project Environmental Assessment/Initial Study ("EA/IS") (selected pages attached).
[5] *Id.* at 2-11.
[6] Siskiyou County Air Pollution Control District, Notice of Determination (Aug. 1, 1995) (attached); Bureau of Land Management, Finding of No Significant Impact (Aug. 25, 1995) (attached).
[7] WDR Order 95-199 (attached).
[8] Letter from James Pedri (Oct. 15, 1999) (emphasis added) (attached).

significant changes. First, Calpine is requesting permission to use potentially large quantities of hydrochloric and/or hydrofluoric acid to fracture open the geothermal reservoir, thereby raising a host of new questions about potential adverse impacts to surface water and groundwater. Second, Calpine seeks to have the revised WDR Order cover not only temporary exploration activities, but also permanent development activities that will continue literally for decades to come. Third, the expansive revisions requested by Calpine would cover at least two dozen new wells that could be used both for exploration and then permanent development, over and above the original five well pads authorized in 1995.

The Regional Board improperly ignored its own Senior Geologist's Recommendation to require three deep and three shallow monitoring wells near Well 31-17.

Regarding the monitoring wells, their very presence in the revised WDRs is an acknowledgement of the risk associated with the proposed acidification of well 31-17. The revised WDRs argue that monitoring wells were not required by the EIR/EIS before the project actually began;[9] but of course, acidification of wells in the project was not contemplated by any of the project's environmental review documents.[10] The provisions for monitoring wells are an indirect admission of the dangers of the proposed acidification and an inadequate response to those dangers—more a band-aid than a cure.

It is important to appreciate that EGS techniques in general include many methods to increase permeability of reservoir rocks. Formation stimulation through the specific use of hydrofluoric acid has been used only in Australia, the Philippines, and a few other non-US sites *where water supplies are not in direct contact with the geothermal reservoir*.[11] The Discharger's 2002 application to the Department of Energy ("DOE") for EGS funding stressed the untried aspects of this technology:

> The Enhanced Geothermal System concept presented here is to further develop existing stimulation technology required to extract energy from the reduced permeability zones . . . . [Discharger] proposes to develop a combination of stimulation technologies that could be used to enhance presently non-commercial or marginally commercial geothermal reservoirs . . . . The use of this technology to stimulate a geothermal well before production begins has *not been tested in the United States* and is the focus of this proposal . . . .[12]

Discharger further admitted in its DOE application that the closest analogue to acidification operations at Telephone Flat was the acidification in 1997 of "the Mahanagdong sector of the Leyte Geothermal Power project in the Philippines."[13]

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[9] Central Valley Regional Water Quality Control Board, Order No. R5-2006-0115, Waste Discharge Requirements for Calpine Siskiyou Geothermal Partners, at 15 (Oct. 2006) [hereinafter "Revised WDRs"] (attached).
[10] *See* discussion *infra* at 11-13.
[11] Dr. Robert Curry, Testimony Before the Central Valley Water Board (May 5, 2006) (attached).
[12] Calpine Siskiyou Geothermal Partners LP, Solicitation for Financial Assistance # DE-PS07-02ID14264, at 1-1 and 2-1 (emphasis added) [hereinafter "Calpine DOE solicitation"] (attached). Calpine further noted that "high-rate injection and acidizing experience in a number of fields has been 'hit-or-miss'; sometimes these methods do not improve well performance at all." *Id.* at 2-1.
[13] *Id.* at 1-1.

The Medicine Lake Highlands, in contrast, are in close proximity to some of the most pristine waters in the state. Furthermore, at the October 27, 2006 hearing of the Regional Board, Petitioner's expert witness, Dr. Robert Curry, presented uncontradicted testimony that the site of the proposed initial acidification (well 31-17) is both connected to the region's groundwater and leaking. Discharger acknowledged this fact in its application to the DOE:

> Dr. Colin Williams of the U.S. Geological Survey believes that water at, and below the shallow production zone between 3500 and 3800 ft. depth, has been moving down the annulus of the well liner [of well 31-17] and has continued to cool the bottom of the well from 525 [degrees Fahrenheit] to 480 [degrees Fahrenheit]. *The fact that the formation is still taking water is indicative that it is connected to the natural fracture system.*[14]

Thus, USGS found that local groundwater is leaking down the outside of the well (not inside the casing) and cooling the bottom on the well. USGS further noted that this means that the well must terminate in an open hydrologic system, where water is flowing out somewhere else. The well bore therefore remains open to inflow and potential cross contamination from shallower groundwater, and the so called "closed" geothermal reservoir system is not closed.

The fluids that flow down the well annulus continue to flow out of the system. For this reason, the temperature of the bottom of the well continues to decrease markedly. The groundwater that is leaking down the well is cold, and the geothermal reservoir was hot when it was first measured but is now cooler. If the hydrogeological system were really closed as claimed by Discharger, any water leaking to the bottom of the well would rise in temperature to the level of the hot surrounding rock. Because the water is continually leaking down the well and because there are no hot springs that emerge at the surface, this water must be leaking into the regional aquifer (the "natural fracture system") that feeds Fall River Springs and the Sacramento River and California Aqueduct systems. Dr. Curry notes that these systems supply a significant proportion of the late summer drought-year Sacramento River flows when Shasta Reservoir is low, such as in 1977. Contamination by hydrofluoric acid of such systems at levels as minute as one quarter of one percent would render drinking water and irrigation supplies hazardous.

Petitioner's expert witness, Dr. Robert Curry of UC Santa Cruz, presented evidence on these matters at both the May 5, 2006 and October 27, 2006 hearings before the Regional Board. On May 5, 2006, the Regional Board ordered the Discharger and Regional Board Staff to consult with Dr. Curry regarding the design and placement of monitoring wells around well 31-17. Discharger refused to release drilling and groundwater information to Dr. Curry, however, despite having promised the DOE in 2002 that it would "make available all drilling, logging stimulation, and well test data developed on the wells in Glass Mountain, either existing or planned, for use by the scientific community to understand the reservoir conditions."[15]

After the Discharger refused to provide Dr. Curry with the information necessary for him to comment in full on the proposed monitoring well design, Regional Board Staff asked Dr. Philip Woodward, Senior Engineering Geologist for the Regional Board, to review all public and

[14] Calpine DOE solicitation, *supra* note 11, at 3-6.
[15] *Id.* at 6-1.

proprietary information related to the project in order to evaluate monitoring well placement and design.[16] While Dr. Woodward disagreed with some of Dr. Curry's technical analysis of the hydrogeology of the area, Dr. Woodward agreed on the necessary monitoring protocol—three deep and three shallow monitoring wells spaced closely around well 31-17.

Dr. Woodward's memo (attached), written with full access to Discharger's proprietary records, indicated that Discharger does not know the depths to groundwater, the thickness of the aquifers, or the directions of flow of water in the aquifers.[17] In the absence of such basic and necessary groundwater data, Dr. Woodward independently determined that Discharger should place at least three shallow *and* at least three deep monitoring wells in close proximity (within "10's of yards") to well 31-17 prior to any acidification operations:

> Using a single deep groundwater monitoring well to monitor potential effects deeper in the water bearing zone will not provide adequate coverage unless the groundwater flow direction is precisely known and a single well can be placed confidently to intercept the flow from the potential contamination source. However, *currently this data does not exist*. As with a shallow monitoring system, *a minimum of three deep wells, screened over the same water bearing zones are necessary to determine groundwater flow direction*. Once the groundwater flow direction is established then it can be determined if at least one of the wells is downgradient of the potential pollution source and is capable of detecting such pollution.[18]

Unfortunately, Dr. Woodward was not present at the October 27, 2006 hearing, and other Regional Board staff actively misrepresented his findings to the Regional Board members, as the tapes of the hearing will show. Staff claimed that Dr. Woodward had endorsed their plan to place only one deep and three shallow monitoring wells up to and even over a mile apart. As this discussion and the attached memo demonstrates, that claim is simply incorrect.[19]

The Regional Board acted arbitrarily and capriciously in adopting WDRs that ignore the preponderance of the technical evidence and their own Senior Geologist's recommendations regarding monitoring well design and placement. *If* the State Board chooses not to reverse the Regional Board's decision and deny the revised WDRs until adequate CEQA and NEPA review has been completed for the proposed acidification, Petitioners request that the State Board require further revision of the WDRs to include the mandatory placement of three deep and three shallow monitoring wells in close proximity to Well 31-17.

The second and third reasons that the Regional Board's adoption of Order No. R5-2006-0115 was inappropriate and improper are primarily legal issues, and they are discussed in detail in Section 7 below.

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[16] Letter from Philip Woodward, Senior Engineering Geologist, Central Valley Regional Water Quality Control Board, to James Rohrbach, Water Resources Control Engineer, Central Valley Regional Water Quality Control Board, at 1 (September 13, 2006) [hereinafter "Woodward Memo"] (attached).

[17] *Id.* at 4 ("In this case, not only is the local direction of groundwater flow unknown, the actual depth to shallow groundwater is unknown.").

[18] *Id.* at 5-6 (emphasis added).

[19] *See also id.* at 5 ("The proposed well spacing, up to and even over a mile apart, is quite large and not suitable for detecting discharges from a single well pad.").

5. HOW THE PETITIONERS ARE AGGRIEVED.

Petitioner Mount Shasta Bioregional Ecology Center ("Ecology Center") is a non-profit public benefit corporation dedicated to advancing public understanding of, and respect for, the outstanding environmental and cultural resources of Mount Shasta and the surrounding area, including the Medicine Lake Highlands and its untainted waters.

The Ecology Center is committed to upholding the highest standards of surface and gro undwater quality and quantity. The Ecology Center works closely with Native American tribal representatives, and advocates protection of the outstanding Native American traditional cultural values and resources that exist within the Medicine Lake Highlands. The Ecology Center's members use and enjoy Medicine Lake and the Medicine Lake Highlands for recreational activities, scientific research and spiritual fulfillment and derive spiritual, recreational, health, conservation, scientific and aesthetic benefits from the preservation of the area in its pure natural state. These benefits depend on the physical, environmental, and visual integrity of these areas, their quietude and purity. The geothermal projects and the activities contained within the Waste Discharge permit will interfere with these positive qualities of Medicine Lake and the Highlands.

Given the sensitivity of the location of the projects in proximity of Paynes Springs, Medicine Lake, and several other lakes, and the importance of the Medicine Lake Highlands as a major source of pure water for California, the Ecology Center is especially concerned for the effects that WDR Order 95-199 would have on the Medicine Lake Highlands' pristine water resources. Filtered through porous rock, the Medicine Lake Highlands' aquifer is the source of the Fall River Springs, the largest spring system in the State of California, and among the most voluminous in the entire United States. This aquifer is among the largest fresh aquifers in California, and Medicine Lake is counted among the pristine lakes of the world where there is no mercury contamination.

Petitioner Pit River Tribe (Ahjumawi-Atsuge Nation) is a federally recognized sovereign Native American Tribe consisting of eleven autonomous bands. The Tribe is located in parts of Shasta, Siskiyou, Modoc and Lassen Counties, and its ancestral territory includes Medicine Lake and its surrounding Highlands. In 1987, the United States Department of the Interior, through its Assistant Secretary, signed the Pit River Tribe's Constitution, acknowledging the Tribe's ancestral lands, including Medicine Lake and its Highlands, and the Tribe's rights over these lands. The Tribe has a long history of use of Medicine Lake and the Highlands for religious purposes. For at least 10,000 years, members of the Pit River Tribe have used, and continue to use, Medicine Lake and the Highlands for religious activities such as vision quests, religious prayers and teaching, traditional shaman/doctoring practices, life cycle ceremonies, collection of traditional foods, medicines, and materials, spiritual renewal, and quiet contemplation. The Tribe and its individual members derive spiritual, cultural, religious, health, environmental and aesthetic benefits from Medicine Lake and the Highlands. These benefits depend on the physical, environmental, and visual integrity of these areas, their quietude and purity. The geothermal projects and the activities contained within the Waste Discharge permit will interfere with these positive qualities of Medicine Lake and the Highlands.

The sacred Medicine Lake Caldera with its shining lake has been designated as a 32-

square-mile Traditional Cultural District by the National Register of Historic Places, and the entire uplift of the Medicine Lake Highlands is considered eligible to the National Register by the managing federal agencies. The Medicine Lake Highlands' pristine pure waters are a key element of the area's cultural significance. The waters are used for ceremonial, healing and life sustaining purposes. The Tribal cultural requirement is that the water must be pure. In addition, the Tribe's allotments in the Fall River Valley could also be affected by any contamination to the Fall River Springs, which have their source within the Medicine Lake Highlands. The Pit River Tribe is specifically concerned that the effects that the activities permitted in WDR Order 95-199 could potentially degrade these waters in such a manner that they would no longer hold the essential life-enhancing qualities of purity and healing. If that were to happen, it would be an unthinkable injustice against Native American people's religious practices, a disproportionate impacts that goes against the principles of environmental justice.

Petitioner Native Coalition for Medicine Lake Highlands Defense ("Native Coalition") is a non-profit organization dedicated to the preservation of cultural and environmental values in the Medicine Lake Highlands, which are sacred not only to the Pit River Tribe but also to other Tribes of northeastern California and southeastern Oregon: Modoc, Karuk, Shasta and Wintu. The Native Coalition includes among its members the Pit River Tribe, the California Council of Tribal Governments, the Intertribal Council of California, and cultural representatives from the Modoc, Karuk, Shasta and Wintu Tribes. Due to the Medicine Lake Highlands' prime importance as a sacred place, and its value to other Tribes regionally, Tribal opposition to geothermal exploitation of the Highlands extends beyond local concerns. The National Congress of American Indians, International Indian Treaty Council, InterTribal Council of California, and the California Council of Tribal Governments have all passed resolutions in opposition to geothermal development in the Medicine Lake Highlands. Members of the Native Coalition use Medicine Lake and the Highlands for a variety of spiritual and traditional cultural purposes, such as religious prayers, spiritual quests and teaching, traditional shaman/doctoring practices, life cycle ceremonies, collection of traditional foods, medicines, and materials, quiet contemplation and general spiritual renewal. These benefits depend on the physical, environmental, and visual integrity of these areas, their quietude and purity. The geothermal projects and the activities contained within WDR Order 95-199 will interfere with these positive qualities of Medicine Lake and the Highlands.

The Native Coalition has particularly grave concerns about the Enhanced Geothermal Systems (EGS) acidification process that would fracture the deep geothermal reservoir. The EGS fracturing process severely threatens the integrity of the Medicine Lake Highlands in ways that have not been studied in any environmental document, nor disclosed to the Tribes. Further, it is well known that geothermal fluids contain arsenic, mercury, chromium, boron and other harmful substances. Inadequate hydrogeologic mapping and the lack of baseline data put the purity of the Highlands' waters at risk, especially given the area's high seismicity. These baseline elements need to be in place *before* further drilling is permitted, as is the practice in other areas, such as the Long Valley Caldera in California. There is presently insufficient evidence to determine the effects of the drilling, reinjection and sumps on water quality and quantity, not to mention the EGS acidification. Any leakage or blowouts could contaminate the springs, creek and nearby lakes, affect water levels and pollute the freshwater aquifer. Lava tubes and porosity make it imperative that waters outside the project area, including the Fall River Springs, also be monitored for possible project effects. Any drilling would have to go through 800-1000 of a

fresh water aquifer, a condition unique to the geothermal conditions of the Medicine Lake Highlands. Other geothermal developments do not have the potential of affecting a major fresh water aquifer, feeding the largest spring system in California — the Fall River Springs.

The Native Coalition for Medicine Lake Highlands Defense therefore considers any geothermal development and associated waste discharge permits in the Medicine Lake Highlands to be a discriminatory act that unduly burdens Native American religious, spiritual and cultural values.

6. THE ACTION THE PETITIONER REQUESTS THE STATE WATER BOARD TO TAKE.

   Petitioners request that the State Board either:

   a) Reverse and remand to the Regional Board with instructions to deny the application for revised WDRs until a subsequent or supplemental EIR is conducted in regards to the proposed acidification; OR
   b) Revise Order No. R5-2006-0115 to:
      i. prevent any acidification of wells until a subsequent or supplemental EIR is completed for such activity, *and*
      ii. require three deep and three shallow monitoring wells, as recommended by the Regional Board's own Senior Engineering Geologist.

7. A STATEMENT OF POINTS AND AUTHORITIES FOR ANY LEGAL ISSUES RAISED IN THE PETITION, INCLUDING CITATIONS TO DOCUMENTS OR HEARING TRANSCRIPTS THAT ARE REFERRED TO.

As noted above, the revised WDRs are internally inconsistent, requiring additional NEPA and CEQA review prior to the acidification of some wells but not for Well 31-17. Furthermore, the Regional Board relied on inaccurate legal premises in adopting the revised WDRs, premises expressly rejected by the neighboring North Coast Water Board in an analogous situation and expressly contradicted in the past by the Regional Board and the Discharger itself. This section reviews these legal issues.

A. The Regional Board Arbitrarily and Capriciously Allowed Acidification of Well 31-17 Without Further CEQA and NEPA Review While Simultaneously Requiring Such Review Before Acidification of Any Other Wells in the Project.

As Petitioners noted in their legal comments before the May 5, 2006 hearing, there has never been any CEQA analysis of the proposed use of hydrofluoric or hydrochloric acid at the project area. The Staff Report submitted to the Regional Board prior to the May hearing conceded that "[a] detailed discussion of formation stimulation does not appear in any of the environmental documents for either the Fourmile Hill or Telephone Flat projects."[20] Staff argued in their Report for the May hearing, however, that "well 'work overs' are specified in the

[20] STAFF REPORT TO THE CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD 6 (May 5, 2006) (attached).

April 1995 Glass Mountain Unit Geothermal Exploration Project EA/IS which applies only to Telephone Flat" and that "[w]ell work overs . . . can include formation stimulation."[21]

Regional Board staff argued again at the October 27, 2006 hearing that the mere mention of well "work over" in the 1995 and 1999 EIRs provided adequate CEQA review for the proposed injection of thousands of gallons of hydrofluoric acid into Well 31-17. In the Response to Comments issued prior to the October hearing, Staff noted that:

> "[W]orkover" is defined in the Schlumberger Glossary of Oilfield Terms as "The process of performing major maintenance or remedial treatments on . . . [a] well." Remedial treatments would include EGS (enhanced geothermal systems) procedures such as hydraulic fracturing, explosive stimulation thermal fracturing and injection of acids.[22]

Thus, Staff believes that the public, well-equipped with Schlumberger Glossaries, was given notice of acidification by the mere mention of the possibility of "well workover" in the 1995 and 1999 EIRs—without any further discussion of mitigation, alternatives, or the cumulative impacts caused by acidification activities that the public was to infer from the term "workover."

Finally, at the May 5, 2006 hearing, Staff for the first time argued that a document entitled "Update Assessment for the Telephone Flat Geothermal Development Project Final Environmental Impact Statement/Environmental Impact Report," prepared by Siskiyou County in November 2002, constituted adequate CEQA review for the proposed acidification (see attached). This document noted that geothermal well work over operations were "specifically anticipated as part of the Telephone Flat Project well field development" in Section 2.2.3.2.2 of the final EIR.[23] The Update Assessment went on to simply describe formation stimulation with acids in three short paragraphs, suggesting that such operations are common without noting the absence of historical precedent for the acidification of geothermal wells near water supplies.[24]

Staff Legal Counsel further suggested in May that, because the Update Assessment was not appealed or challenged, our Clients had missed their opportunity to object to the adequacy of this environmental review. Staff's argument is legally flawed because it fundamentally misapprehends the nature of the Update Assessment. This document was an internal Siskiyou County document prepared for the purpose of assessing whether there had been any changes in the project since issuance of the Development Project EIS/EIR in 1999. It merely asserted that acidification was "anticipated" in the Final EIS/EIR and summarily described the technique; it did not contain any discussion of alternatives, mitigation, or cumulative impacts of acidification

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[21] *Id.*

[22] Central Valley Regional Water Quality Control Board, Response to Comments, at 6 (October 27, 2006) [hereinafter "October Response to Comments"] (attached).

[23] Environmental Management Associates, Update Assessment for the Telephone Flat Geothermal Development Project, at 2-1 (November 2002) (attached).

[24] *Id.* at 2-2. The Update Assessment, quoting the Discharger, also noted that Well 31-17 was worked over using acidification in the late 1980s by a predecessor in interest. The Update Assessment does not note that this event was closely followed by earthquakes in the region. If Well 31-17 was acidified by a predecessor in interest, the event has no bearing on the question at hand; an illegal activity conducted without adequate environmental review cannot supply precedent for future decisions regarding the Medicine Lake Highlands.

in the Medicine Lake Highlands, as required by CEQA.[25] Moreover, although the document was circulated for public comment, no responses to comments were issued as required by CEQA.

Neither the Update Assessment nor the 1995 and 1999 EIR/EIS documents provided adequate CEQA or NEPA review for the proposed acidification. Both the BLM and the North Coast Regional Water Quality Control Board have reached the same conclusion, as will be discussed in greater detail below.[26]

In the past, the Regional Board planned to require CEQA review for acidification of any well.

The contorted legal reasoning offered by the Regional Board staff to find adequate CEQA and NEPA review of acidification is in fact a significant change of direction for the Board. For example, on April 15, 2004, Jim Rohrbach, Water Resources Control Engineer for the Central Valley Water Resources Control Board, emailed Petitioners to note that "We have pulled the Calpine WDRs off the April Agenda *and will not put them on another agenda until Calpine has done a supplemental Environmental Document which covers EGS* [i.e. acidification]."[27] Thus, the Regional Board has expressly acknowledged the need for additional environmental review prior to any well acidification in the past.

In the past, Discharger also admitted that CEQA review was necessary prior to acidification of any well.

It was not just the Regional Board that once consider further CEQA and NEPA review necessary before acidification of any wells in the project area—the Discharger once considered such review necessary as well. In an email to the North Coast Water Board on February 13, 2003, Discharger wrote that:

> We had received a proposal from MHA to prepare the EA/IS … document to cover acidizing/workovers anywhere in the KGRA so we could put this issue behind us once and for all; however, the costs were potentially high ($+80,000) by the time we get through appeal hearings and we wouldn't be done until mid-summer, again due to timing for appeal hearings. That means we wouldn't have revised WDRs until late in the season ... Thus, we made the decision to wait and include it in another CEQA/NEPA document later this year or over the winter of 2003-2004.[28]

Discharger thus admitted that CEQA and NEPA review were necessary prior to the acidification of any wells within the North Coast Water Board's jurisdiction. Nothing of any legal import distinguishes Well 31-17 or the other wells within the Central Valley Water Board's jurisdiction from the wells regulated by North Coast, and yet the Discharger now applies an entirely different

[25] *Id.* at 2-1 to 2-2.
[26] *See* April 28, 2006 Letter from Timothy J. Burke (attached); *see also* Aug. 8, 2002 Letter from Miguel Villicana (attached).
[27] Email from Jim Rohrbach, Water Resources Control Engineer, Regional Board, to Peggy Risch, MSBEC (April 15, 2004) (emphasis added) (attached).
[28] Email from Charlene Wardlow, Calpine Corporation, to Miguel Villicana, North Coast Water Board (February 13, 2003) (attached).

legal analysis to claim that CEQA and NEPA review of acidification is satisfied for all present and future wells located at Telephone Flat.[29]

What has changed since 2003 is the Discharger's financial condition. This is a case of a bankrupt company attempting to cut corners at the expense of the water quality in this State.

It is logically and legally inconsistent to make different conclusions regarding CEQA and NEPA review for Well 31-17 and the other wells at the project site.

Despite this unaccountable reversal in legal interpretation by Regional Board Staff and the Discharger, the Regional Board voted on October 27, 2006 to adopt revised WDRs that prohibited acidification of all wells in the project area until additional NEPA and CEQA review was completed, *except for* Well 31-17.[30] The same environmental review documents apply to all of the wells at the Telephone Flat project site, however, Well 31-17 included.[31] Logically, it cannot be the case that environmental review is legally necessary for all other wells within the project area, but not for Well No. 31-17 simply because BLM has already approved acidification activity through a "sundry notice."[32] As a CEQA responsible agency, the Regional Board has an independent *state law* obligation to consider the environmental impacts of any action it authorizes and to make its own findings on the significant environmental effects of the project, supported by substantial evidence in the record, regardless of prior federal approvals.[33]

In the end, the Regional Board reached the same legal conclusion as the North Coast Water Board regarding the CEQA and NEPA review necessary before acidification of wells in an analogous situation—but only for *most* of the wells in its jurisdiction. The Regional Board cannot then legally justify allowing acidification of Well 31-17 without an identical standard of prior environmental review. The differential treatment of Well 31-17 may be due to misinformation about federal law preemption in this case, which we address in the following subsection.

B. The Regional Board Relied on Inaccurate Legal Advice Regarding Federal Preemption, Responsible Agency Authority Under CEQA, and the Scope of the Original WDRs.

The strangely differential treatment of Well 31-17 may result from an inaccurate supposition that the BLM sundry notice approving acidification activities for that well preempts any State regulatory action. Regional Board staff have argued that the US EPA and BLM have

[29] October Response to Comments, *supra* note 21, at 10.
[30] Revised WDRs at 4, 19.
[31] These documents include the Draft Telephone Flat Geothermal Development Project EIS/EIR (May 1998), the Final Telephone Flat Geothermal Development Project EIS/EIR (Feb. 1999), and the Glass Mountain Exploration EA/IS (May 2002). We have not included this voluminous documentation in our Attachment so as not to overburden the State Board, but these documents are available in the Regional Board's internal files.
[32] Letter from Rebecca Watson, United States Department of the Interior, to Charlene Wardlow, Calpine Corporation (April 30, 2003) (attached).
[33] *See, e.g. Californians for Alternatives to Toxics v. Department of Food and Agriculture*, 136 Cal. App. 4th 1, 13, 16 (concluding that the state agency approving the action has a "duty of independent investigation") (2005); 14 C.C.R. §§15091 and 15096.

the exclusive authority to regulate the siting, construction, and injection of fluids like acids into geothermal wells under the federal Underground Injection Control Program ("UIC program"),[34] which is part of the Safe Drinking Water Act.[35] Staff argues that the UIC program preempts the Regional Board from regulating *any* aspect of the proposed acidification.[36]

The federal UIC program does not preempt state regulation of the proposed acidification.

In fact, the UIC program incorporates an express savings clause preserving the rights of State and local governments to regulate underground injection:

> Nothing in this subchapter shall diminish any authority of a State or political subdivision to adopt or enforce any law or regulation respecting underground injection but no such law or regulation shall relieve any person of any requirement otherwise applicable under this subchapter.[37]

Thus, the only state regulations that are barred under the statute are those that would contradict a requirement under the Safe Drinking Water Act, which is not the case here. The Safe Drinking Water Act was intended by Congress to simply provide minimum regulations to protect water quality, and the Act expressly allows state and local governments to impose higher standards or additional standards, such as environmental review.

In fact, the one case cited by Regional Board staff on this point,[38] *Bath Petroleum Storage, Inc. v. Sovas*, expressly *upheld* the right of the New York State Department of Environmental Conservation to require additional mitigation strategies that the US EPA had found unnecessary under its own UIC program.[39] The *Bath* Court found no express, field, or conflict preemption in requiring sonar testing of an underground storage cavern, even when US EPA had found such testing expressly unnecessary.[40] The Court's holding is clear:

> [T]he EPA regulates underground injection for the protection of underground drinking water, but the state still retains limited regulatory authority over underground injection. . . . . [S]tates retain authority respecting underground injection so long as it does not impinge on the UIC program administered by the EPA. See *Int'l Paper Co. v. Ouellette*, 479 U.S. 481, 492, 107 S.Ct. 805, 93 L.Ed.2d 883 (1987) (Clean Water Act's savings clause made it clear "[a]lthough Congress intended to dominate the field of pollution regulation, the savings clause negates the inference that Congress 'left no room' for state causes of action.").[41]

The *Bath* case is directly parallel to the case at hand. A New York State agency could impose additional, more stringent regulations on an activity regulated by the UIC program, so long as

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[34] 42 USC §300(h)
[35] 42 USC §300(f) *et. seq.*
[36] *See, e.g.* Central Valley Regional Water Quality Control Board, Buff Sheet 1-2 (October 27, 2006) (summarizing preemption claim based on UIC program) (attached).
[37] 42 USC §300h-2(d).
[38] October Response to Comments, *supra* note 22, at 10.
[39] 309 F.Supp.2d 357 (N.D.N.Y. 2004).
[40] *Id.* at 366-372.
[41] *Id.* at 367-368.

those regulations are not in conflict with the Safe Drinking Water Act. Similarly, the Central Valley Water Board can require a subsequent or supplemental EIR prior to allowing acidification of any wells within its jurisdiction, regardless of whether an Assistant Secretary at the Department of the Interior has reversed local BLM staff to issue a sundry notice approving acidification of one well.

As mentioned above, the Regional Board has an independent *state law* obligation to consider the environmental impacts of any action it authorizes and to make its own findings on the significant environmental effects of the project, supported by substantial evidence in the record, regardless of prior federal approvals.[42] Furthermore, the Porter-Cologne Act requires Regional Water Boards to take regulatory action to protect against any "activities and factors which may affect the quality of the waters of the state."[43] The UIC program, by its own express terms, does *not* restrict or abrogate that mandate.

Finally, it is unclear that formation stimulation of geothermal wells by acid is even regulated under the federal UIC program.[44] At least one US EPA official expressed doubt to a Petitioner that the proposed acidification activities at Telephone Flat are in fact covered by the UIC program.

In sum, the Regional Board does have jurisdiction to require additional environmental review prior to the acidification of any wells at the Telephone Flat project, including Well 31-17. The Regional Board committed an error as a matter of law in relying on advice to the contrary.

The Regional Board has the legal authority as a responsible agency to require supplemental or subsequent environmental review prior to any acidification.

Regional Board staff has argued that the Regional Board has no authority as a responsible agency in this project to require a subsequent or supplemental EIR because a) the 2002 Update Assessment addressed acidification, and there is therefore no significant change to the project, and b) the Board must presume the prior EIR is valid absent a determination by the prior lead agency (the Air District) to reopen the EIR. We have discussed the inaccuracy of the first contention above. The second contention is just as inaccurate.

Staff is simply incorrect as a matter of law that the Board is prevented from requiring additional CEQA review for the now-expanded project activities. Sections 15162 and 15163 of the CEQA Guidelines address this situation expressly. Section 15162(a) explains the circumstances in which a subsequent EIR is required, including for substantial changes in the project or the circumstances surrounding the project.[45] Section 15162(c) then explains that while no subsequent EIR may be required by the lead agency for changes in the project that occur after

[42] *Californians for Alternatives to Toxics*, *supra* note 33, at 1, 13, 16; 14 C.C.R. §§15091 and 15096.
[43] Cal. Water Code §13050(e).
[44] *See* US EPA, CLASSES OF INJECTION WELLS, http://www.epa.gov/safewater/uic/classes.html (describing classes of injection wells regulated under the UIC program, none of which clearly covers the proposed formation stimulation activities).
[45] 14 Cal. Code Regs. § 15162(a).

the lead agency's approval is completed, a responsible agency with subsequent discretionary permitting authority may – indeed, must – do precisely that:

> (c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. *If after the project is approved, any of the conditions described in subdivision (a) occurs, a subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project*, if any. In this situation *no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified* or subsequent negative declaration adopted.[46]

Finally, section 15163 explains that where the necessary changes to the EIR are less major, '[t]he lead *or responsible agency* may choose to prepare a supplement to an EIR rather than a subsequent EIR."[47] Thus, the CEQA Guidelines contemplate precisely the situation presented here, where the lead agency has no further discretionary approval over the project, but a responsible agency still has discretionary permitting authority and changes in the project as originally contemplated warrant additional environmental review of the potential impacts on the resources that the responsible agency is charged with protecting.

Regional Board staff's October response to comments seemed to misinterpret the relief that Petitioners have requested here. Petitioners do not seek to have the Board pass judgment on the power plant project itself, and they do not assert that the Board has authority to deny that project. Rather, Designated Parties believe the scope of the investigation work for which Calpine seeks a new WDR is beyond the scope of the activity contemplated in the EIR for the power plant and, therefore, requires additional environmental review.

C. The North Coast Water Board Reached Opposite Conclusions Regarding Federal Preemption, Responsible Agency Authority Under CEQA, and the Need for CEQA and NEPA Review Prior to Well Acidification.

Faced with a similar situation and environmental review record, the North Coast Water Board ("North Coast") reached opposite conclusions regarding the preemption question and the role of a responsible agency under CEQA in this instance. North Coast clearly concluded that it did have the jurisdiction and the authority to regulate: it evaluated the environmental review record, found that record inadequate to support the planned acidification, and therefore forbade any such acidification.

On June 24, 2002, North Coast wrote to the Siskiyou County Air Pollution Control District to note that "[c]umulative impacts to water quality were not evaluated in the EA/IS."[48] Noting that the Telephone Flat project area is directly adjacent to the Fourmile Hill project area,

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[46] *Id.* § 15162(c) (emphasis added).
[47] *Id.* § 15163(a) (emphasis added).
[48] Letter from Miguel A. Villicana, North Coast Regional Board, to William Stephens, Siskiyou County Air Pollution Control District (June 24, 2002) (attached).

North Coast requested "that cumulative impacts be evaluated taking under account all exploration operations conducted in the general area."[49]

On August 8, 2002, North Coast wrote to the Discharger, stating that "[p]rohibition A.5 of the current WDRs prohibits use of Enhanced Geothermal Systems (EGS) techniques for flow testing wells. This prohibition was included because *EGS was not discussed in any of the California Environmental Quality Act (CEQA) documents prepared for the project.*"[50]

As discussed above, both the Central Valley Water Board and the Discharger appeared to have come to the same conclusion in the past regarding the need for a subsequent or supplemental EIR prior to any acidification activities. Their current reversal in regards to Well 31-17 is a clear example of standardless, arbitrary, and capricious discretion.

8. A STATEMENT THAT COPIES OF THE PETITION HAVE BEEN SENT TO THE REGIONAL WATER BOARD AND TO THE DISCHARGER, IF DIFFERENT FROM THE PETITIONER.

A true and correct copy of this petition was mailed on November 27, 2006 to the Regional Board and Discharger at the following addresses:

State Water Resources Control Board
Office of Chief Counsel
Attn: Elizabeth Miller Jennings
Senior Staff Counsel
P.O. Box 100
Sacramento, CA 95812-0100

Bruce Carlson
Calpine Corporation
Geysers Administration Center
10350 Socrates Mine Road
Middletown, CA 95461-9732

9. A STATEMENT THAT THE ISSUES RAISED IN THE PETITION WERE PRESENTED TO THE REGIONAL BOARD BEFORE THE REGIONAL BOARD ACTED, OR AN EXPLANATION OF WHY THE PETITIONER COULD NOT RAISE THOSE OBJECTIONS BEFORE THE REGIONAL BOARD.

Petitioners raised the issues discussed in this petition before the Central Valley Regional Board in written comments dated April 24, September 8, and October 23, 2006 (see attached), in addition to oral comments during the October 27, 2006 hearing on the matter.

[49] *Id.*
[50] Letter from Miguel A. Villicana, North Coast Regional Board, to Charlene Woodrow, Calpine Incorporated (August 8, 2002) (attached).

* * *

If you have any questions regarding this petition, please contact us directly.

Dated: November 27, 2006

Respectfully submitted,

By: _____
Brian Shillinglaw, Clinic Student
Deborah Sivas, Clinic Director